Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

Practice guidelines for the perioperative management of patients with obstructive sleep apnea: an updated report by the American Society of Anesthesiologists Task Force on Perioperative Management of Patients with Obstructive Sleep Apnea.

Bibliographic Source(s)

American Society of Anesthesiologists Task Force on Perioperative Management of Patients [trunc]. Practice guidelines for the perioperative management of patients with obstructive sleep apnea: an updated report by the American Society of Anesthesiologists Task Force on Perioperative Management of Patients with Obstructive Sleep Apnea. Anesthesiology. 2014 Feb;120(2):268-86. [88 references] PubMed

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Practice guidelines for the perioperative management of patients with obstructive sleep apnea: a report by the American Society of Anesthesiologists Task Force on Perioperative Management of Patients with Obstructive Sleep Apnea. Anesthesiology. 2006 May;104(5):1081-93. [3 references]

Regulatory Alert

FDA Warning/Regulatory Alert

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- March 22, 2016 – Opioid pain medicines : The U.S. Food and Drug Administration (FDA) is warning about several safety issues with the entire class of opioid pain medicines. These safety risks are potentially harmful interactions with numerous other medications, problems with the adrenal glands, and decreased sex hormone levels. They are requiring changes to the labels of all opioid drugs to warn about these risks.

Recommendations

Major Recommendations

I. Preoperative Evaluation

- Anesthesiologists should work with surgeons to develop a protocol whereby patients in whom the possibility of obstructive sleep apnea (OSA) is suspected on clinical grounds are evaluated long enough before the day of surgery to allow preparation of a perioperative management plan.
    - This evaluation may be initiated in a preanesthesia clinic (if available) or by direct consultation from the operating surgeon to the anesthesiologist.
- A preoperative evaluation should include a comprehensive review of previous medical records (if available), an interview with the patient and/or family, and conducting a physical examination.
    - Medical records review should include (but not be limited to) checking for a history of airway difficulty with previous anesthetics, hypertension, or other cardiovascular problems, and other congenital or acquired medical conditions.
- Review of sleep studies is encouraged.
    - The patient and family interview should include focused questions related to snoring, apneic episodes, frequent arousals during sleep (e.g., vocalization, shifting position, and extremity movements), morning headaches, and daytime somnolence.*
    - A physical examination should include an evaluation of the airway, nasopharyngeal characteristics, neck circumference, tonsil size, and tongue volume.
- If any characteristics noted during the preoperative evaluation suggest that the patient has OSA, the anesthesiologist and surgeon should jointly decide whether to (1) manage the patient perioperatively based on clinical criteria alone or (2) obtain sleep studies, conduct a more extensive airway examination, and initiate indicated OSA treatment in advance of surgery.
- If the preoperative evaluation does not occur until the day of surgery, the surgeon and anesthesiologist together may elect for presumptive management based on clinical criteria or a last-minute delay of surgery.
- For safety, clinical criteria should be designed to have a high degree of sensitivity (despite the resulting low specificity), meaning that some patients may be treated more aggressively than would be necessary if a sleep study was available.
- The severity of the patient's OSA, the invasiveness of the diagnostic or therapeutic procedure, and the requirement for postoperative analgesics should be taken into account in determining whether a patient is at increased perioperative risk from OSA.
- The patient and his or her family as well as the surgeon should be informed of the potential implications of OSA on the patient's perioperative course.

II. Inpatient Versus Outpatient Surgery
- Before patients at increased perioperative risk from OSA are scheduled to undergo surgery, a determination should be made regarding whether a surgical procedure is most appropriately performed on an inpatient or outpatient basis.
    - Factors to be considered in determining whether outpatient care is appropriate include (1) sleep apnea status, (2) anatomical and physiologic abnormalities, (3) status of coexisting diseases, (4) nature of surgery, (5) type of anesthesia, (6) need for postoperative opioids, (7) patient age, (8) adequacy of postdischarge observation, and (9) capabilities of the outpatient facility.
    - The availability of emergency difficult airway equipment, respiratory care equipment, radiology facilities, clinical laboratory facilities, and a transfer agreement with an inpatient facility should be considered in making this determination.

III. Preoperative Preparation
- Preoperative initiation of continuous positive airway pressure (CPAP) should be considered, particularly if OSA is severe.
    - For patients who do not respond adequately to CPAP, noninvasive positive pressure ventilation should be considered.
- The preoperative use of mandibular advancement devices or oral appliances and preoperative weight loss should be considered when feasible.
    - A patient who has had corrective airway surgery (e.g., uvulopalatopharyngoplasty, surgical mandibular advancement) should be assumed to remain at risk of OSA complications unless a normal sleep study has been obtained and symptoms have not returned.
- Patients with known or suspected OSA may have difficult airways and therefore should be managed according to the National Guideline Clearinghouse (NGC) summary of the American Society of Anesthesiologists (ASA) guideline Practice guidelines for management of the difficult airway: an updated report by the American Society of Anesthesiologists Task Force on Management of the Difficult Airway.

IV. Intraoperative Management
- Because of their propensity for airway collapse and sleep deprivation, patients at increased perioperative risk from OSA are especially susceptible to the respiratory depressant and airway effects of sedatives, opioids, and inhaled anesthetics; therefore, the potential for postoperative respiratory compromise should be considered in selecting intraoperative medications.
- For superficial procedures, consider the use of local anesthesia or peripheral nerve blocks, with or without moderate sedation.
- If moderate sedation is used, ventilation should be continuously monitored by capnography or another automated method if feasible because of the increased risk of undetected airway obstruction in these patients.

- Consider administering CPAP or using an oral appliance during sedation to patients previously treated with these modalities.
- General anesthesia with a secure airway is preferable to deep sedation without a secure airway, particularly for procedures that may mechanically compromise the airway.
- Major conduction anesthesia (spinal/epidural) should be considered for peripheral procedures.
- Unless there is a medical or surgical contraindication, patients at increased perioperative risk from OSA should be extubated while awake.
- Full reversal of neuromuscular block should be verified before extubation.
- When possible, extubation and recovery should be carried out in the lateral, semiupright, or other nonsupine position.

V. Postoperative Management
- Regional analgesic techniques should be considered to reduce or eliminate the requirement for systemic opioids in patients at increased perioperative risk from OSA.
- If neuraxial analgesia is planned, weigh the benefits (improved analgesia and decreased need for systemic opioids) and risks (respiratory depression from rostral spread) of using an opioid or opioid–local anesthetic mixture rather than a local anesthetic alone.
- If patient-controlled systemic opioids are used, continuous background infusions should be avoided or used with extreme caution.
- To reduce opioid requirements, nonsteroidal antiinflammatory agents and other modalities (e.g., ice, transcutaneous electrical nerve stimulation) should be considered if appropriate.
- Clinicians are cautioned that the concurrent administration of sedative agents (e.g., benzodiazepines and barbiturates) increases the risk of respiratory depression and airway obstruction.
- Supplemental oxygen should be administered continuously to all patients who are at increased perioperative risk from OSA until they are able to maintain their baseline oxygen saturation while breathing room air.
    - The Task Force cautions that supplemental oxygen may increase the duration of apneic episodes and may hinder detection of atelectasis, transient apnea, and hypoventilation by pulse oximetry.
- When feasible, CPAP or noninvasive positive pressure ventilation (with or without supplemental oxygen) should be continuously administered to patients who were using these modalities preoperatively, unless contraindicated by the surgical procedure.
    - Compliance with CPAP or noninvasive positive pressure ventilation may be improved if patients bring their own equipment to the hospital.
- If possible, patients at increased perioperative risk from OSA should be placed in nonsupine positions throughout the recovery process.
- Hospitalized patients who are at increased risk of respiratory compromise from OSA should have continuous pulse oximetry monitoring after discharge from the recovery room.
    - Continuous monitoring may be provided in a critical care or stepdown unit, by telemetry on a hospital ward, or by a dedicated, appropriately trained professional observer in the patient's room.
    - Continuous monitoring should be maintained as long as patients remain at increased risk.**
- If frequent or severe airway obstruction or hypoxemia occurs during postoperative monitoring, initiation of nasal CPAP or noninvasive positive pressure ventilation should be considered.

VI. Criteria for Discharge to Unmonitored Settings
- Patients at increased perioperative risk from OSA should not be discharged from the recovery area to an unmonitored setting (i.e., home or unmonitored hospital bed) until they are no longer at risk of postoperative respiratory depression.
    - Because of their propensity to develop airway obstruction or central respiratory depression, this may require a longer stay as compared with non-OSA patients undergoing similar procedures.
- To establish that patients are able to maintain adequate oxygen saturation levels while breathing room air, respiratory function may be determined by observing patients in an unstimulated environment, preferably while asleep.

*Screening protocols or questionnaires may be useful for identifying these clinical characteristics.

**Intermittent pulse oximetry or continuous bedside oximetry without continuous observation does not provide the same level of safety.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Confirmed or suspected obstructive sleep apnea (OSA)

Guideline Category

Evaluation

Management

Prevention

Risk Assessment

Clinical Specialty

Anesthesiology

Internal Medicine

Pulmonary Medicine

Sleep Medicine

Surgery

Intended Users

Advanced Practice Nurses

Hospitals

Nurses

Physician Assistants

Physicians

Respiratory Care Practitioners

Guideline Objective(s)

To improve the perioperative care and reduce the risk of adverse outcomes in patients with confirmed or suspected obstructive sleep apnea (OSA) who receive sedation, analgesia, or anesthesia for diagnostic or therapeutic procedures under the care of an anesthesiologist

Target Population

Patients with confirmed or suspected obstructive sleep apnea (OSA) who may be at increased risk of perioperative morbidity and mortality because of potential difficulty in maintaining a patent airway. This population includes but is not limited to patients who have sleep apnea resulting from obesity, pregnancy, and other skeletal, cartilaginous, or soft tissue abnormalities causing upper airway obstruction.

Note: These guidelines do not focus on patients with the following conditions:

- Pure central sleep apnea
- Abnormalities of the upper or lower airway not associated with sleep apnea (e.g., deviated nasal septum)
- Daytime hypersomnolence from other causes
- Patients younger than 1 year

Obesity in the absence of sleep apnea

Interventions and Practices Considered

Preoperative Evaluation

1. Development of a perioperative management plan protocol
2. Medical records review
3. Review of sleep studies
4. Patient/family interview and physical examination
5. Assignment of clinical criteria
6. Risk evaluation (consideration of severity of obstructive sleep apnea [OSA], invasiveness of the diagnostic/therapeutic procedure, requirement for postoperative analgesics)
7. Consideration of inpatient vs. outpatient surgery

Preoperative Preparation

1. Continuous positive airway pressure (CPAP)
2. Noninvasive positive pressure ventilation
3. Use of mandibular devices and oral appliances
4. Preoperative weight loss (if indicated)
5. Consult the American Society of Anesthesiologists "Practice Guidelines for Management of the Difficult Airway"

Intraoperative Management

1. Consideration of the potential for postoperative respiratory compromise in the selection of intraoperative medications
2. Local anesthesia or peripheral nerve blocks
3. General anesthesia with a secure airway
4. Major conduction anesthesia (spinal/epidural)
5. Ventilation monitoring by capnography
6. Use of CPAP or oral appliance
7. Extubation:
    - Verify the full reversal of neuromuscular block before extubation
    - Extubate patients after they are fully awake

Postoperative Management

1. Regional analgesic techniques
2. Neuraxial analgesia with consideration of benefits/risks of an opioid or opioid–local anesthetic mixture rather than a local anesthetic alone
3. Patient-controlled analgesia without a background infusion
4. Nonsteroidal antiinflammatory agents and other modalities (e.g., ice, transcutaneous electrical nerve stimulation)
5. Supplemental oxygen
6. CPAP or noninvasive positive pressure
7. Placement of patient in nonsupine positions
8. Continuous pulse oximetry monitoring
9. Extended stay in recovery area (if indicated)
10. Observation of patient in an unstimulated environment (establish patient's ability to maintain adequate oxygen saturation levels breathing room air)

Major Outcomes Considered

Risk of adverse outcomes in patients with obstructive sleep apnea (OSA), such as:

- Hypoxemic events
- Rescue events
- Transfer to intensive care units

- Frequent or severe airway obstruction
- Respiratory depression

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Scientific evidence used in the development of these Guidelines is based on findings from literature published in peer-reviewed journals. Literature citations are obtained from PubMed and other healthcare databases, direct internet searches, task force members, liaisons with other organizations, and from hand searches of references located in reviewed articles.

State of the Literature

For these updated Guidelines, a review of studies used in the development of the original Guidelines was combined with studies published subsequent to approval of the original Guidelines in 2005.

Interventions were examined to assess their relationship to a variety of outcomes related to the perioperative management of patients with obstructive sleep apnea in the following areas:

- Preoperative Evaluation
- Preoperative Preparation
- Intraoperative Management
- Postoperative Management

For the literature review, potentially relevant clinical studies were identified via electronic and manual searches of the literature. The electronic and manual searches covered a 61 year period from 1953 to 2013. More than 2,000 citations were initially identified, yielding a total of 835 non-overlapping articles that addressed topics related to the evidence linkages. After review of the articles, 476 studies did not provide direct evidence and were subsequently eliminated. A total of 359 articles contained direct linkage-related evidence.

No evidence linkage contained sufficient literature with well-defined experimental designs and statistical information to conduct an analysis of aggregated randomized controlled trials (i.e., meta-analysis). A complete bibliography used to develop these updated Guidelines, organized by section, is available as Supplemental Digital Content 22 .

Number of Source Documents

A total of 359 articles contained direct linkage related evidence.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Scientific Evidence

Findings from the aggregated literature are reported in the text of the guidelines by evidence category, level, and direction. Evidence categories refer specifically to the strength and quality of the *research design* of the studies. Category A evidence represents results obtained from randomized controlled trials (RCTs), and Category B evidence represents observational results obtained from nonrandomized study designs or RCTs without pertinent controls. When available, Category A evidence is given precedence over Category B evidence in the reporting of results. These evidence categories are further divided into evidence levels. Evidence levels refer specifically to the strength and quality of the summarized study *findings* (i.e., statistical findings, type of data, and the number of studies reporting/replicating the findings) within the two evidence categories. For this document, only the highest level of evidence is included in the summary report for each intervention, including a directional designation of benefit, harm, or equivocality for each outcome.

Category A

RCTs report comparative findings between clinical interventions for specified outcomes. Statistically significant ($P<0.01$) outcomes are designated as either beneficial (B) or harmful (H) for the patient; statistically nonsignificant findings are designated as equivocal (E).

Level 1: The literature contains a sufficient number of RCTs to conduct meta-analysis,† and meta-analytic findings from these aggregated studies are reported as evidence.

Level 2: The literature contains multiple RCTs, but the number of RCTs is not sufficient to conduct a viable meta-analysis for the purpose of these guidelines. Findings from these RCTs are reported as evidence.

Level 3: The literature contains a single RCT, and findings from this study are reported as evidence.

Category B

Observational studies or RCTs without pertinent comparison groups may permit *inference* of beneficial or harmful relationships among clinical interventions and outcomes. Inferred findings are given a directional designation of beneficial (B), harmful (H), or equivocal (E). For studies that report statistical findings, the threshold for significance is *P* value less than 0.01.

Level 1: The literature contains observational comparisons (e.g., cohort and case-control research designs) between clinical interventions for a specified outcome.

Level 2: The literature contains observational studies with associative statistics (e.g., relative risk, correlation, and sensitivity/specificity).

Level 3: The literature contains noncomparative observational studies with descriptive statistics (e.g., frequencies and percentages).

Level 4: The literature contains case reports.

Insufficient Evidence

The *lack* of sufficient scientific evidence in the literature may occur when the evidence is either unavailable (i.e., no pertinent studies found) or inadequate. Inadequate literature cannot be used to assess relationships among clinical interventions and outcomes, because such literature does not permit a clear interpretation of findings due to methodological concerns (e.g., confounding in study design or implementation) or does not meet the criteria for content as defined in the "Focus" of the guidelines.

Opinion-Based Evidence

All opinion-based evidence (e.g., survey data, open-forum testimony, internet-based comments, letters, and editorials) relevant to each topic was considered in the development of these updated Guidelines. However, only the findings obtained from formal surveys are reported.

Opinion surveys were developed for this update by the Task Force to address each clinical intervention identified in the document. Identical surveys were distributed to expert consultants and a random sample of American Society of Anesthesiologists (ASA) members.

Category A: Expert Opinion

Survey responses from Task Force-appointed expert consultants are reported in summary form in the text, with a complete listing of consultant survey responses reported in Appendix 2 in the original guideline document.

Category B: Membership Opinion

Survey responses from active ASA members are reported in summary form in the text, with a complete listing of ASA member survey responses reported in Appendix 2 in the original guideline document.

Survey responses from expert and membership sources are recorded by using a 5-point scale and summarized based on median values.‡

Strongly Agree: Median score of 5 (at least 50% of the responses are 5)

Agree: Median score of 4 (at least 50% of the responses are 4 and 5)

Equivocal: Median score of 3 (at least 50% of the responses are 3, or no other response category or combination of similar categories contains at least 50% of the responses)

Disagree: Median score of 2 (at least 50% of responses are 2 or 1 and 2)

Strongly Disagree: Median score of 1 (at least 50% of responses are 1)

Category C: Informal Opinion

Open-forum testimony obtained during development of the original guidelines, Internet-based comments, letters, and editorials are all informally evaluated and discussed during the formulation of guideline recommendations. When warranted, the Task Force may add educational information or cautionary notes based on this information.

† All meta-analyses are conducted by the ASA methodology group. Meta-analyses from other sources are reviewed but not included as evidence in this document.

‡ When an equal number of categorically distinct responses are obtained, the median value is determined by calculating the arithmetic mean of the two middle values. Ties are calculated by a predetermined formula.

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

The scientific assessment of these guidelines was based on evidence linkages or statements regarding potential relationships between clinical interventions and outcomes.

No evidence linkage contained sufficient literature with well-defined experimental designs and statistical information to conduct an analysis of aggregated randomized controlled trials (i.e., meta-analysis).

Interobserver agreement among Task Force members and two methodologists was established by inter-rater reliability testing. Agreement levels using a kappa (Ä¸) statistic for two-rater agreement pairs were as follows: (1) type of study design, Ä¸=0.50 to 0.69; (2) type of analysis, Ä¸=0.43 to 0.60; (3) evidence linkage assignment, Ä¸=0.88 to 1.00; and (4) literature inclusion for database, Ä¸=0.44 to 0.87. The rater chance-corrected agreement values were (1) study design, Sav=0.56, Var (Sav)=0.009; (2) type of analysis, Sav=0.54, Var (Sav)=0.011; (3) linkage assignment, Sav=0.87, Var (Sav)=0.003; and (4) literature database inclusion, Sav=0.58, Var (Sav)=0.030. These values represent moderate to high levels of agreement.

Consensus-based Evidence

Consensus was obtained from multiple sources, including (1) updated surveys sent to consultants who were selected based on their knowledge or expertise in perioperative management of patients with obstructive sleep apnea and a random sample of American Society of Anesthesiologists members, (2) testimony from attendees of two publicly held open forums at two national anesthesia meetings, and (3) Task Force opinion and interpretation. An updated opinion survey of consultant and American Society of Anesthesiologists members regarding the management of patients with known or suspected obstructive sleep apnea was conducted. The survey rate of return for the consultants was 53% (N=54 of 102) and 267 responses were obtained from the random sample of American Society of Anesthesiologists members. Summary results of these surveys are reported in the text of these updated guidelines, with a complete and full reporting of all questionnaire item responses in Tables 3 and 4 in the original guideline document.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The original guidelines were developed by an American Society of Anesthesiologists (ASA)-appointed Task Force of 12 members, consisting of anesthesiologists in both private and academic practices from various geographic areas of the United States, a bariatric surgeon, an otolaryngologist, and two methodologists from the ASA Committee on Standards and Practice Parameters.

The original Task Force developed the guidelines by means of a six-step process. First, they reached consensus on the criteria for evidence of effective perioperative management of patients with obstructive sleep apnea (OSA). Second, original published research studies from peer-reviewed journals relevant to the perioperative management of patients with OSA were evaluated. Third, the panel of expert consultants was asked to (1) participate in opinion surveys on the effectiveness of various perioperative management strategies for patients with OSA and (2) review and comment on a draft of the guidelines developed by the Task Force. Fourth, the Task Force held open forums at two major national meetings to solicit input on its draft recommendations. National organizations representing most of the specialties whose members typically care for patients with OSA were invited to participate in the open forums. Fifth, the consultants were surveyed to assess their opinions on the feasibility and financial implications of implementing the Guidelines. Sixth, all available information was used to build consensus within the Task Force to finalize the guidelines.

In 2012, the ASA Committee on Standards and Practice Parameters requested that the updated guidelines published in 2006 be re-evaluated. This update consists of an evaluation of literature published since completion of the original guidelines and an evaluation of new survey findings of expert consultants and ASA members. A summary of recommendations is found in Appendix 1 in the original guideline document.

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The updated guideline was approved by the American Society of Anesthesiologists (ASA) House of Delegates on October 16, 2013.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

Evidence was obtained from two principal sources: scientific evidence and opinion-based evidence (see Appendix 2 in the original guideline document).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Improved perioperative care and reduced risk of perioperative morbidity and mortality in patients with obstructive sleep apnea (OSA) who receive sedation, analgesia, or anesthesia for diagnostic or therapeutic procedures under the care of an anesthesiologist.

Potential Harms

Supplemental oxygen may increase the duration of apneic episodes and may hinder detection of atelectasis, transient apnea, and hypoventilation by pulse oximetry.

Qualifying Statements

Qualifying Statements

Practice guidelines are systematically developed recommendations that assist the practitioner and patient in making decisions about health care. These recommendations may be adopted, modified, or rejected according to clinical needs and constraints, and are not intended to replace local institutional policies. In addition, practice guidelines developed by the American Society of Anesthesiologists (ASA) are not intended as standards or absolute requirements, and their use cannot guarantee any specific outcome. Practice guidelines are subject to revision as warranted by the evolution of medical knowledge, technology, and practice. They provide basic recommendations that are supported by a synthesis and analysis of the current literature, expert and practitioner opinion, open-forum commentary, and clinical feasibility data.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Living with Illness

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

American Society of Anesthesiologists Task Force on Perioperative Management of Patients [trunc]. Practice guidelines for the perioperative management of patients with obstructive sleep apnea: an updated report by the American Society of Anesthesiologists Task Force on Perioperative Management of Patients with Obstructive Sleep Apnea. Anesthesiology. 2014 Feb;120(2):268-86. [88 references] PubMed

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2006 May (revised 2014 Feb)

Guideline Developer(s)

American Society of Anesthesiologists - Medical Specialty Society

Source(s) of Funding

American Society of Anesthesiologists

Guideline Committee

Task Force on Perioperative Management of Patients with Obstructive Sleep Apnea

Composition of Group That Authored the Guideline

Task Force Members: Jeffrey B. Gross, M.D. (*Task Force Chair*), Farmington, Connecticut; Jeffrey L. Apfelbaum, M.D. (*Committee Chair*); Robert A. Caplan, M.D., Seattle, Washington; Richard T. Connis, Ph.D., Woodinville, Washington; Charles J. Coté, M.D., Boston, Massachusetts; David G. Nickinovich, Ph.D., Bellevue, Washington; Denham S. Ward, M.D., Rochester, New York; Edward M. Weaver, M.D., M.P.H., Seattle, Washington; Lawrence Ydens, M.D., Albuquerque, New Mexico

Financial Disclosures/Conflicts of Interest

The authors declare no competing interests.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Practice guidelines for the perioperative management of patients with obstructive sleep apnea: a report by the American Society of Anesthesiologists Task Force on Perioperative Management of Patients with Obstructive Sleep Apnea. Anesthesiology. 2006 May;104(5):1081-93. [3 references]

Guideline Availability

Electronic copies: Available from the Anesthesiology Journal Web site .

Print copies: Available from the American Society for Anesthesiologists, 520 North Northwest Highway, Park Ridge, IL 60068-2573.

Availability of Companion Documents

None available

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI on June 1, 2006. The information was verified by the guideline developer on June 8, 2006. This summary was updated by ECRI Institute on May 9, 2014. This summary was updated by ECRI Institute on September 21, 2015 following the U.S. Food and Drug Administration advisory on non-aspirin nonsteroidal anti-inflammatory drugs (NSAIDs). This summary was updated by ECRI Institute on June 2, 2016 following the U.S. Food and Drug Administration advisory on Opioid pain medicines.

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